TuePS12

RF Synchronized Short Pulse Laser Ion Source

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A laser ion source that produces bunched ions is proposed. In this ion source, plasma is produced by irradiation of a short pulse laser in RF accelerating field synchronized with the laser pulse. The ions in the plasma are accelerated before its expansion, and a bunched ion beam can be extracted, while electrons go to the other direction. We have been carrying out experiments using single shots of short pulse lasers to investigate the fundamental process. In this presentation, some results of ion extraction experiments will be reported.